

Customer No.: 31561
Application No.: 10/710,729
Docket NO.: 13135-US-PA

AMENDMENT

Please amend the application as indicated hereafter.

In the Claims :

1. (original) A low temperature polysilicon thin film transistor (LTPS-TFT) structure disposed on a substrate, comprising:

a cap layer disposed over the substrate, wherein there is a gap between the cap layer and the substrate;

a polysilicon film disposed over the cap layer, wherein the polysilicon film comprises a channel region and a source/drain region on each side of the channel region, and the channel region is directly above the gap; and

a gate disposed above the channel region of the polysilicon film.

2. (original) The LTPS-TFT structure of claim 1, wherein the structure further comprises a buffer layer sandwiched between the substrate and the cap layer so that the gap is disposed between the cap layer and the buffer layer.

3. (original) The LTPS-TFT structure of claim 2, wherein the gap has a coefficient of thermal conductivity smaller than the coefficient of thermal conductivity of the buffer layer.

4. (original) The LTPS-TFT structure of claim 1, wherein the gap has a coefficient of thermal conductivity smaller than the coefficient of thermal conductivity of the substrate layer.

5. (original) The LTPS-TFT structure of claim 1, wherein the structure further

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comprises a gate dielectric layer disposed over the polysilicon film.

6. (original) The LTPS-TFT structure of claim 1, wherein the grain size of the channel region of the polysilicon film is on average greater than the grain size of the source/drain region of the polysilicon film.

7. (original) The LTPS-TFT structure of claim 1, wherein the width of the gate is smaller than the average grain size of the channel region.

8. (original) The LTPS-TFT structure of claim 1, wherein the gate comprises a dual gate structure.

9. (original) The LTPS-TFT structure of claim 1, wherein the structure further comprises:

a dielectric layer disposed on the polysilicon film and the gate, wherein the dielectric layer has a plurality of contact windows that exposes the source/drain region of the polysilicon film; and

a source/drain conductive layer disposed on the dielectric layer, wherein the source/drain conductive layer is electrically connected to the polysilicon film in the source/drain region through the contact window.

Claims 10-13 (canceled).